Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) A method of biological assay comprising:

a) providing an enzyme substrate comprising two or more identical fluorescence dye groups bound to a flexible peptide comprising one or more enzymatically cleavable bonds, the dye groups being drawn together by free energy attractions such that the dye groups together self-quench their fluorescence by dye stacking or dimerization, and

b) contacting said substrate with a substance being assayed to determine the presence of an enzyme capable of cleaving an enzymatically cleavable bond wherein the enzymatic cleaving of said cleavable bond of the peptide will release the fluorescent dye groups from dye stacking or dimerizing, thereby producing an at least 20-fold increase in fluorescence intensity over that of the quenched dye groups thereby indicating the presence of said enzyme, wherein the emission wavelength of the fluorescent dye groups is at or above 570 nm.

2-3 (canceled)

4. (original) The method according to claim 1 wherein said dye groups are separated from each other by a distance of less than 100 Å.

5. (original) The method according to claim 1 wherein said released fluorescence dye groups emit radiation in the visible range.

6. (original) The method according to claim 1 wherein said fluorescence dye groups have a planar configuration.

7. (original) The method according to claim 1 wherein said dye groups are selected from the group consisting of fluorescein, rhodamine, and cyanine dye groups.

8. (original) The method according to claim 1 wherein said dye groups are selected from the group consisting of fluorescein, tetramethylrhodamine, X-Rhodamine, Rhodamine B, and TEXAS RED.

9. (original) The method according to claim 1 wherein said flexible peptide comprises from 2 to about 10 amino acids, wherein said dye groups bound to said peptide form a dye dimer or stack and wherein said peptide has at least one enzyme-specific cleavable bond.

10. (original) The method according to claim 1 wherein said enzyme involved in said enzymatic cleaving is selected from the group consisting of aspartic, metallo-, thiol, serine, retroviral, and trypsin proteases.

11. (canceled)

12. (previously presented) A protease substrate comprising a flexible peptide and including two identical fluorescence dye groups that are drawn together by free energy attractions so as to self-quench fluorescence of the dye groups by intramolecular dimerization or stacking and which, when separated, fluoresce at an at least 20-fold increase in fluorescence intensity over that of the quenched dye groups, wherein the emission wavelength of the fluorescent dye groups is at or above 570 nm.

13. (original) The protease substrate according to claim 12 wherein said dye groups of an intramolecular dimer formed by said intramolecular dimerization are separated by a distance of less than 100Å.

14. (canceled)

15. (original) The protease substrate according to claim 12 wherein said dye groups comprise a fluorescence donor and acceptor.

16. (original) The protease substrate according to claim 12 wherein said dye groups have a planar configuration.

17. (original) The protease substrate according to claim 12 wherein said dye groups are selected from the groups consisting of fluorescein, rhodamine, and cyanine dye groups.

18. (original) The protease substrate according to claim 12 wherein said dye groups are selected from the groups consisting of fluorescein, tetramethylrhodamine, X-Rhodamine, Rhodamine B, and TEXAS RED.

19. (original) The protease substrate according to claim 12 wherein said peptide comprises from 2 to about 10 amino acids, wherein said dye groups bound to said peptide form a stack, and wherein said peptide has at least one enzyme-specific cleavable bond.

20. (original) The protease substrate according to claim 12 having the formula of SEQ ID NO. 2:
TMR-Val-Pro-Arg-Gly-Lys-TMR.

21. (previously presented) An assay method of detecting a microorganism, which microorganism produces a characteristic enzyme, comprising:

a) providing an enzyme substrate specific for said characteristic enzyme produced by said microorganism comprising two or more identical fluorescence dye groups bound to a flexible peptide comprising one or more bonds cleavable by said characteristic enzyme, the dye groups being drawn together by free energy attractions such that the dye groups self-quench their fluorescence by dye dimerization or stacking, and

b) cleaving one or more of said cleavable bonds of the peptide by said characteristic enzyme to release the fluorescence dye groups from dye dimerization or stacking, thereby producing an at least 20-fold increase in fluorescence intensity over that of the quenched dye groups thereby indicating the presence of said microorganism, wherein the emission wavelength of the fluorescent dye groups is at or above 570 nm.

22. (new) The method of claim 1, wherein the increase in fluorescence intensity is 24 to 29-fold.

23. (new) The protease substrate of claim 12, wherein the increase in fluorescence intensity is 24 to 29-fold.

24. (new) The assay method of claim 21, wherein the increase in fluorescence intensity is 24 to 29-fold.